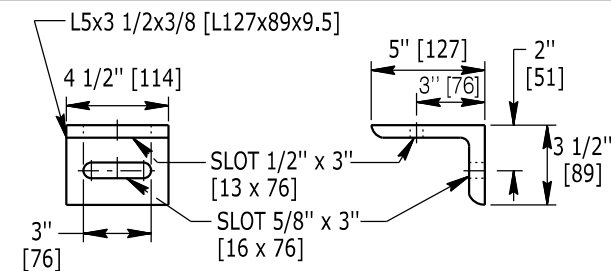


BOX BEAM FABRICATION
INDEX OF SHEETS

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	FABRICATION DETAILS
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02	Rail Splices
03	Transition C & D Connection Hardware to Concrete Barrier
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04	Posts
05	Guardrail Rail Elements, Transition A & B Rail Elements
06	Transition C & D Rail Elements
07	End Anchoage Type I & Type II Rail Elements
08	Disclaimer Sheet For Following Terminals:
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10	Impact Head and Anchorage
11	Post #1 and Foundation Tubes
12	Rails and Internal Energy Absorbing Tubes
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13	Rails, Post #1, Support Bracket, Post Breaker Impact Head
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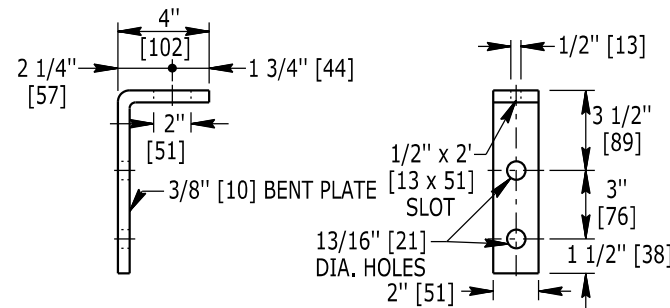
NOTE: [MPN] = Maintenance Part Number



B1 STANDARD BOX BEAM SUPPORT ANGLE

USE (1) - (P1) BOLT AND EITHER (1) - (R7) BOLT FOR HSS 6x6 [HSS 152x152] RAIL OR (1) - (R3) BOLT FOR HSS 6x2 [HSS 152x51] RAIL

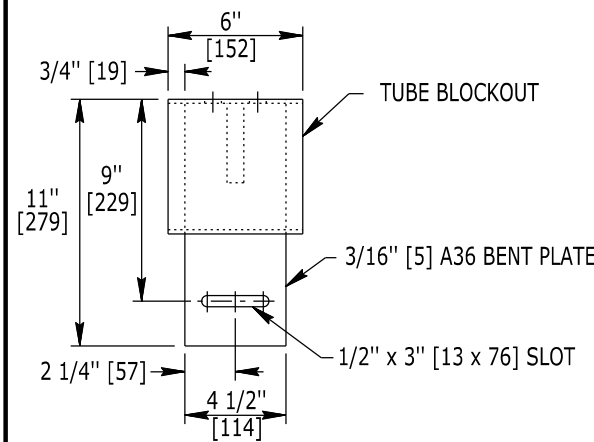
[MPN 101278]



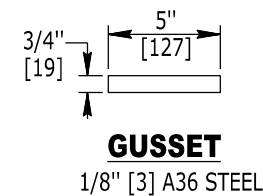
B2 MEDIAN BARRIER SUPPORT BRACKET

USE (2) - (M1) & (1) - (R7) BOLTS

[MPN 101246]

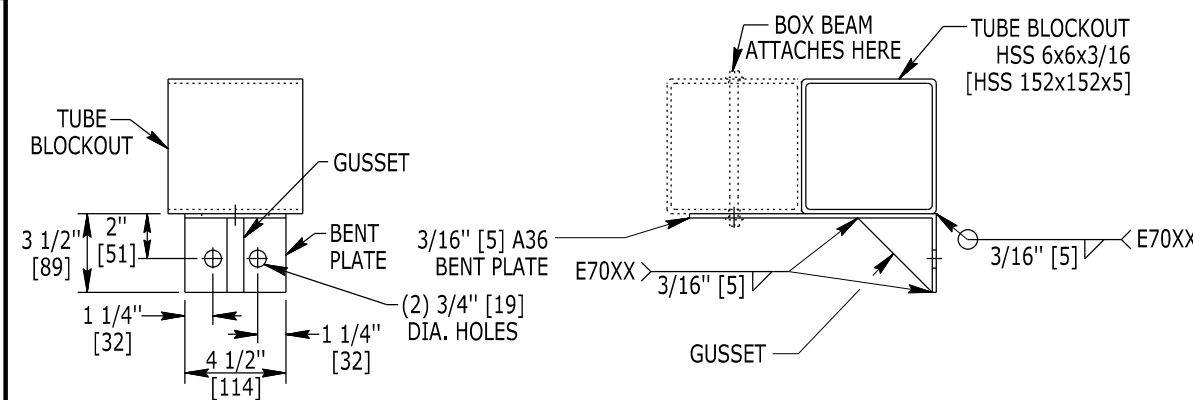


TOP VIEW



GUSSET

1/8" [3] A36 STEEL



FRONT VIEW

SIDE VIEW

B8 TRANSITION C & D RAIL SUPPORT BRACKET DETAIL

5 REQUIRED PER TRANSITION
FOR POSTS T3, T4, T5, T6, T7

BOLT REQUIREMENTS

3/4" A307 HEX BOLTS (TYP. MEDIAN POST BOLT)

(M1) 3/4" x 1 1/2" [19 x 40] (A307) + 2 WASHERS (F844) + 1 NUT (A563)

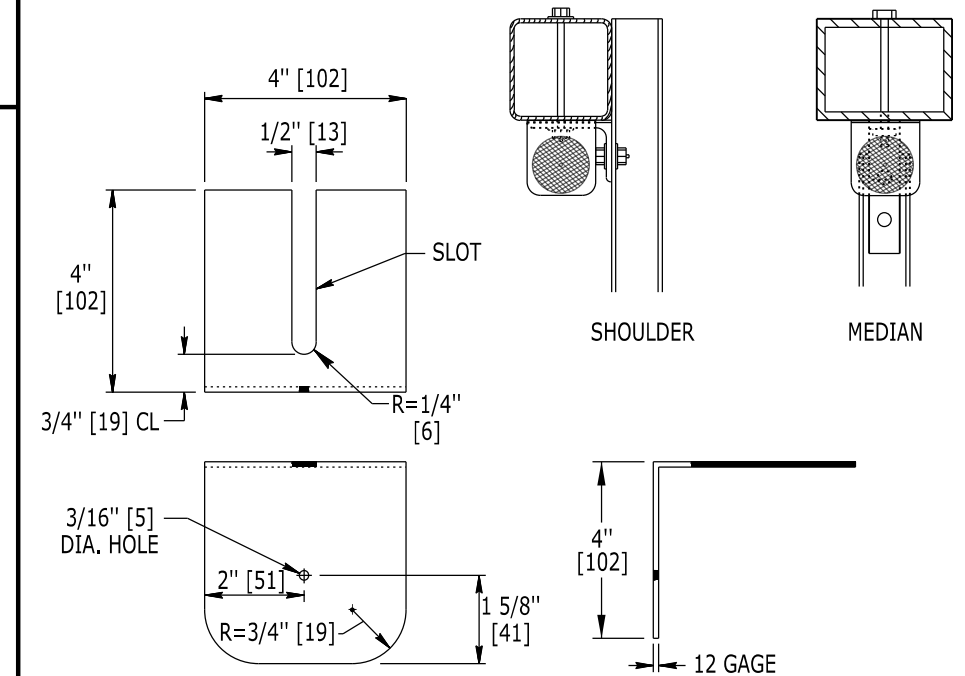
1/2" A307 HEX BOLTS (TYP. POST)

(P1) 1/2" x 1 1/2" [13 x 40] (A307) + 2 WASHERS (F844) + 1 NUT (A563)

3/8" A307 HEX BOLTS (TYP. RAIL BOLT)

(R3) 3/8" x 3 1/2" [10 x 90] (A307) + 2 WASHERS (F844) + 1 NUT (A563)

(R7) 3/8" x 7 1/2" [10 x 190] (A307) + 2 WASHERS (F844) + 1 NUT (A563)



CONNECT REFLECTOR BUTTON TO TAB USING 3/16" DIA. x 1/2" [5 DIA. x 51] ALUMINUM BLIND STEEL RIVET WITH STEEL MANDREL. REFLECTOR BUTTON COLOR: MATCH EDGE LINE STRIPE COLOR OUTSIDE SHOULDERS - CRYSTAL (WHITE) MEDIAN SHOULDERS - AMBER

3 1/4" [83] ROUND REFLECTOR BUTTON

REFLECTOR TAB DETAIL

Manufacture reflector tabs from 12 gage [2.8 thick] steel. Place a reflective tab on every fourth post for standard runs of box beam & 2 tabs (one each direction) for box beam median barrier. Place a standard bolt washer under the head and nut.

Designed by: WBW
Drawn by: TWS
Checked by: WBW
Previous Dwg. No. 606-7A

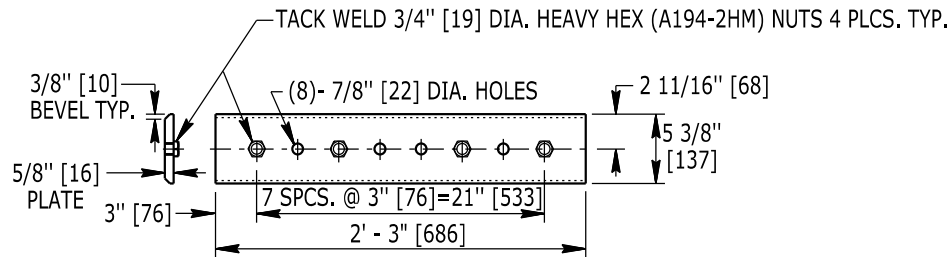
HARDWARE -
RAIL/POST ATTACHMENTS AND REFLECTOR TABS

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



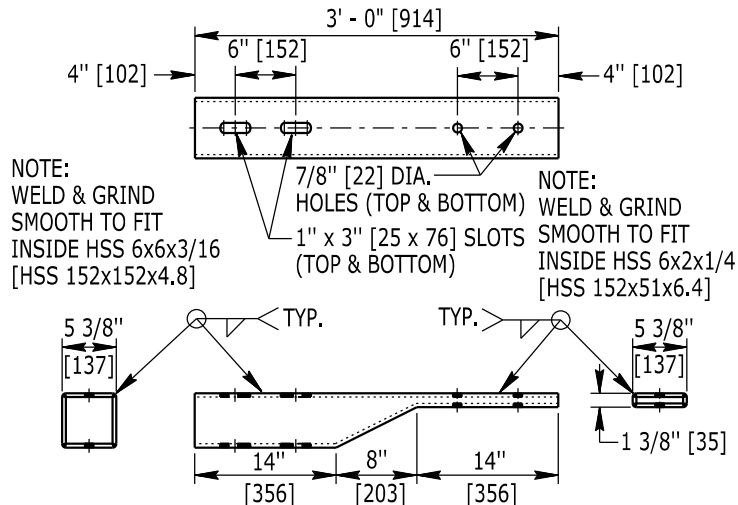
BOX BEAM GUARDRAIL FABRICATION STANDARDS

STANDARD PLAN NUMBER
606-7B
SHEET 1 of 14
Issued by: ENGINEERING SERVICES
Date Issued: MARCH 2022



C1 STANDARD BOX BEAM SPLICE PLATE

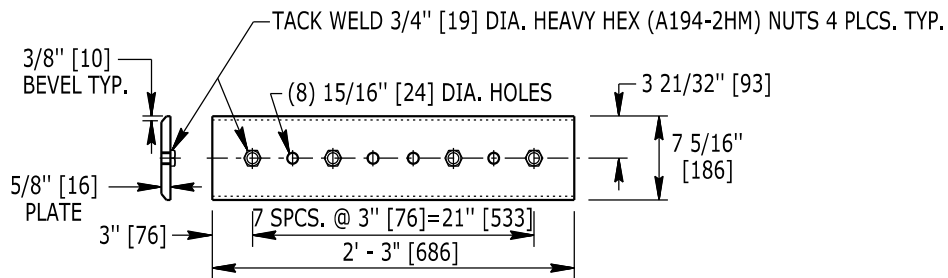
(Use 2 per splice)
USE (4) - (HS2) BOLTS FOR EACH SPLICE PLATE
MPN 101258



NOTE: Fabricate sleeve from 3/8\" [10] A36 steel. Cut top & side walls to shape. Bend bottom wall as shown.

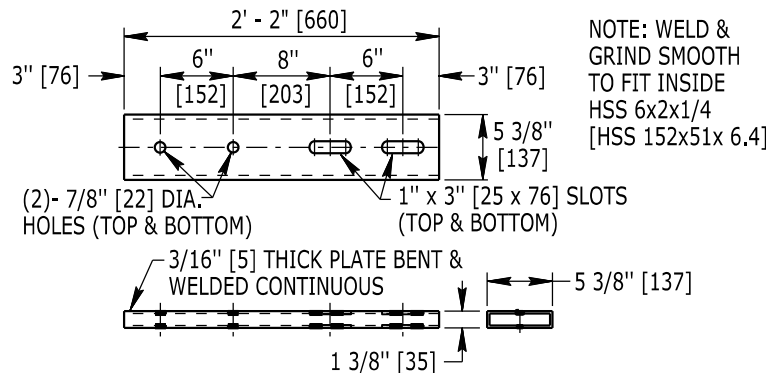
C3 UPPER BRIDGE RAIL CONNECTION SLEEVE

USE (2) - (HS3) & (2) - (HS8) BOLTS
MPN 101287



C2 STANDARD BOX BEAM MEDIAN BARRIER SPLICE PLATE

(Use 2 per splice)
USE (4) - (HS2) BOLTS FOR EACH SPLICE PLATE
MPN 101292



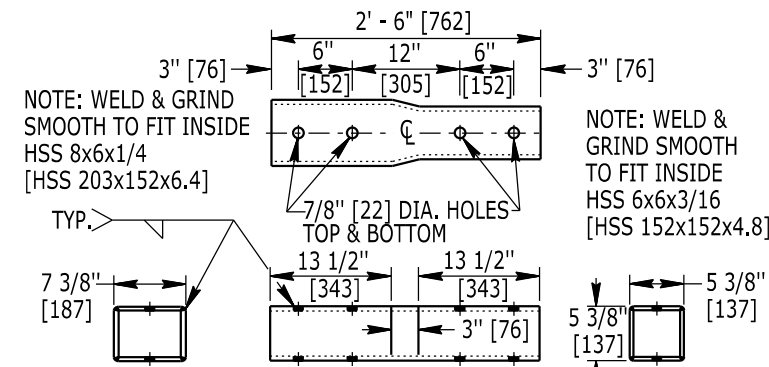
C4 LOWER BRIDGE RAIL CONNECTION SLEEVE

USE (4) - (HS3) BOLTS
MPN 100241

BOLT REQUIREMENTS

3/4\" A325 HIGH STRENGTH HEAVY HEX BOLTS (TYP. SPLICE BOLT)

- (HS2) 3/4\" x 2\" [19 x 50] (A325) + 1 HARDENED WASHER (F436)
(HS3) 3/4\" x 3 1/2\" [19 x 90] (A325) + 2 HARDENED WASHERS (F436) + 1 NUT (A194-2HM)
(HS8) 3/4\" X 8\" [19 X 205] (A325) + 2 HARDENED WASHERS (F436) + NUT (A194-2HM)



NOTE: Fabricate sleeve from 3/8\" [10] A36 steel. Cut each top & bottom wall from continuous steel plate. Weld side walls at all junctions.

C5 MEDIAN BARRIER CONNECTION SLEEVE

USE (4) - (HS8) BOLTS
MPN 101323

Designed by: WBW
Drawn by: TWS
Checked by: WBW
Previous Dwg. No. 606-7A

HARDWARE - RAIL SPLICES

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



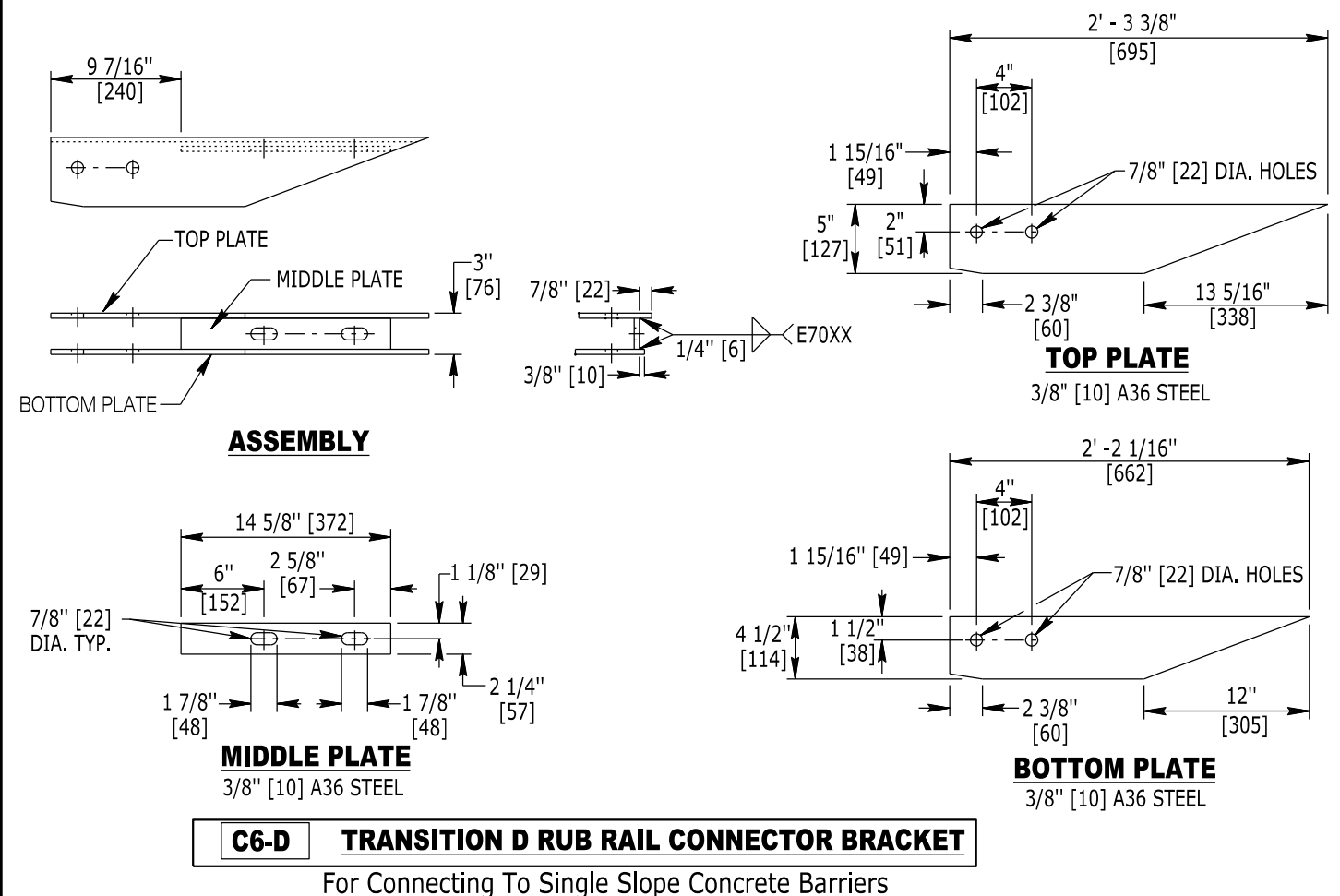
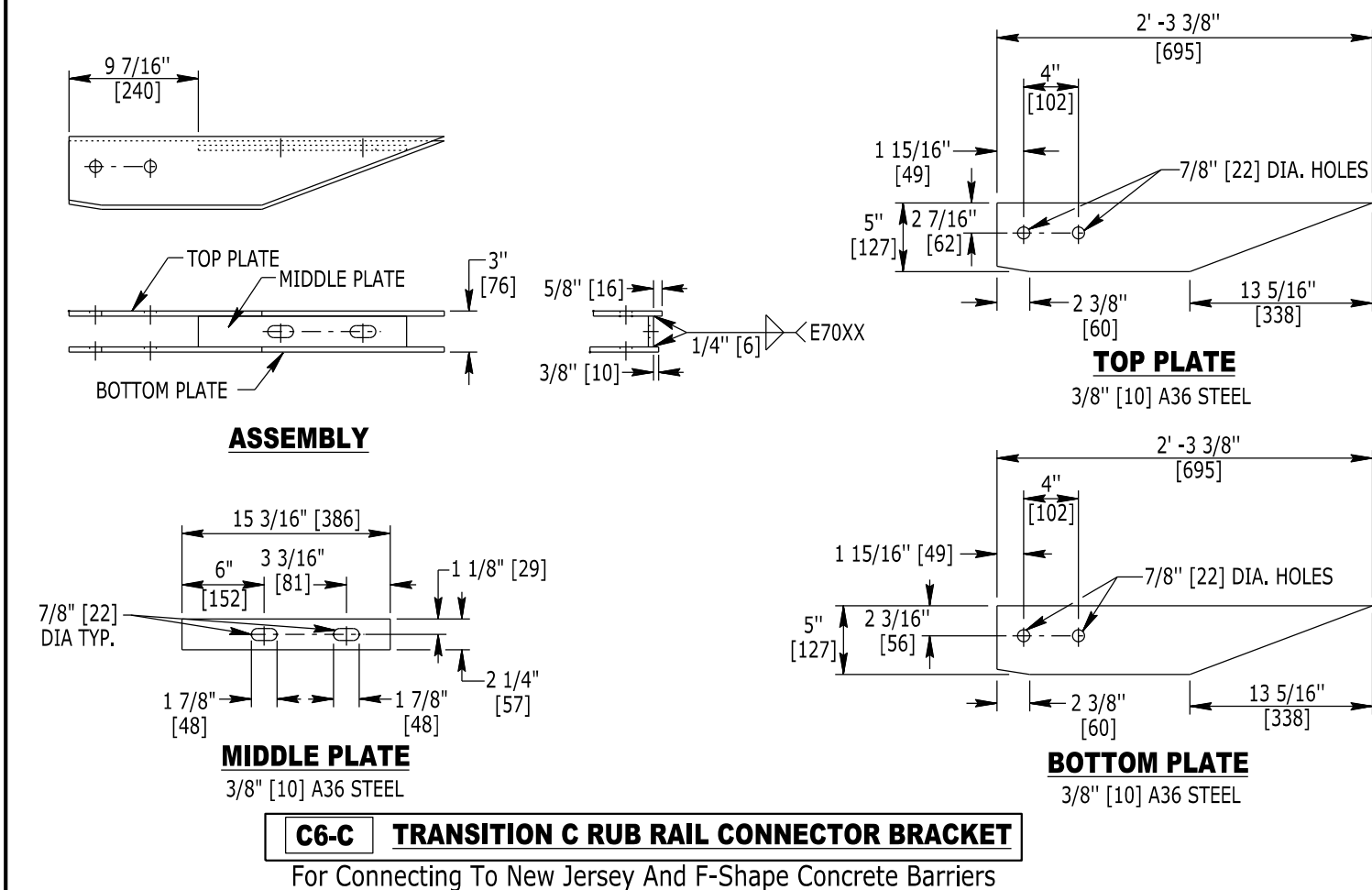
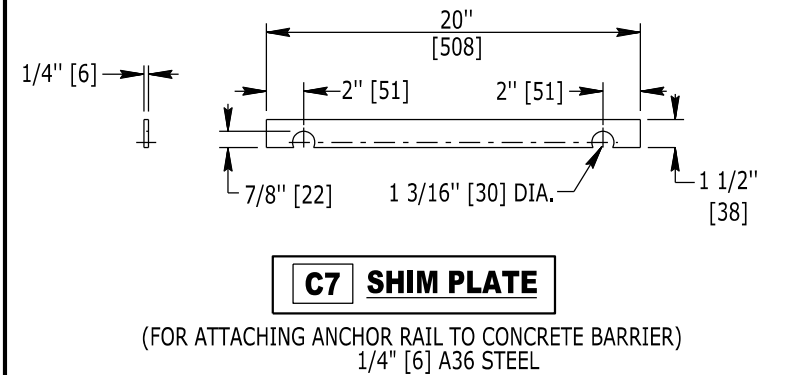
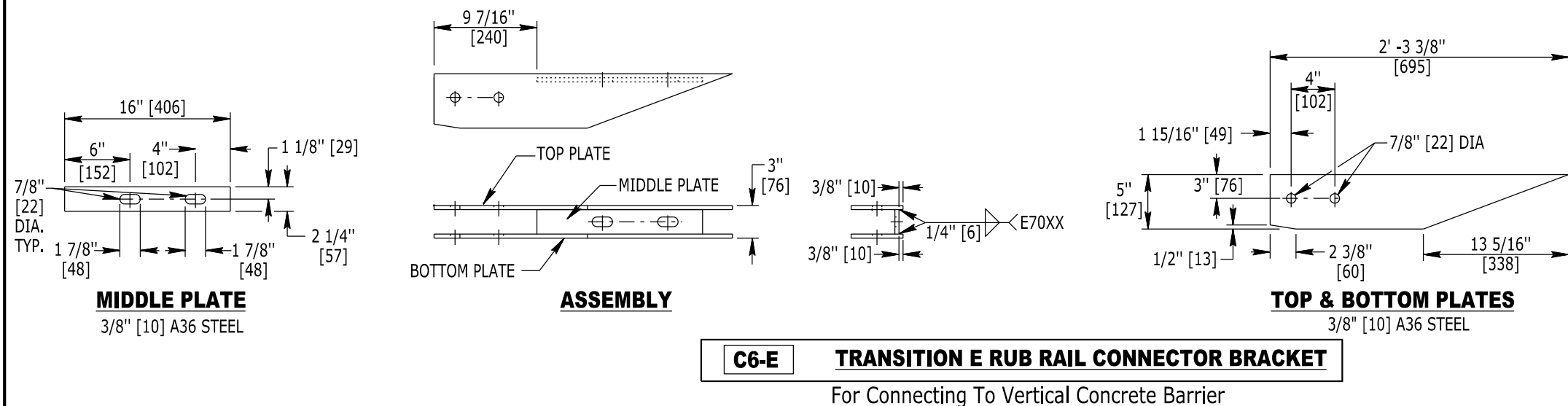
WYOMING DEPARTMENT
OF
TRANSPORTATION

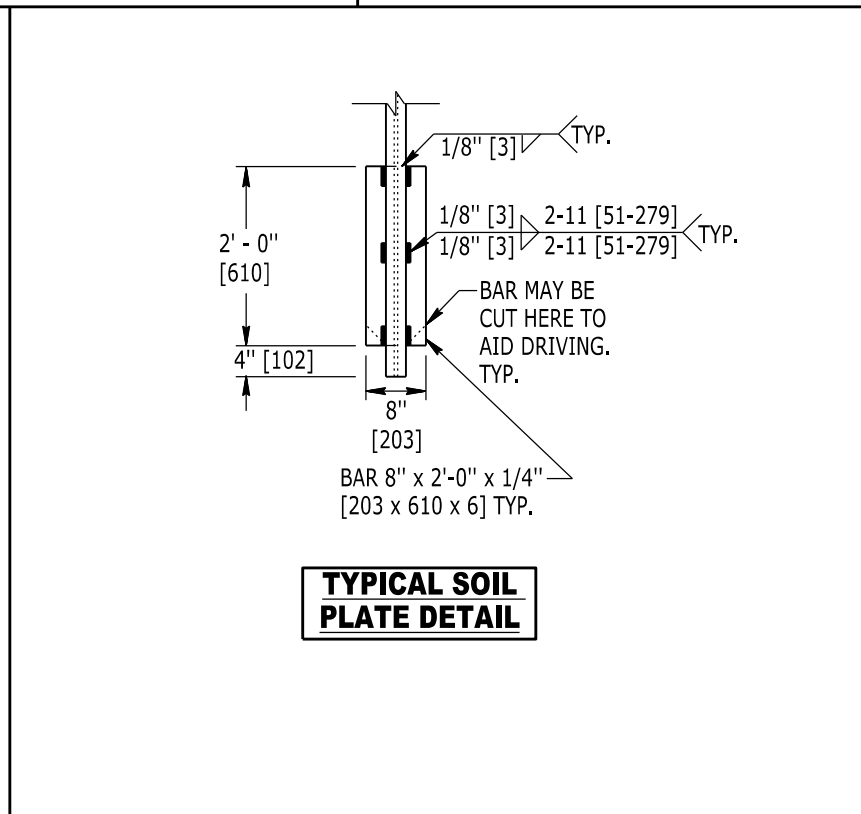
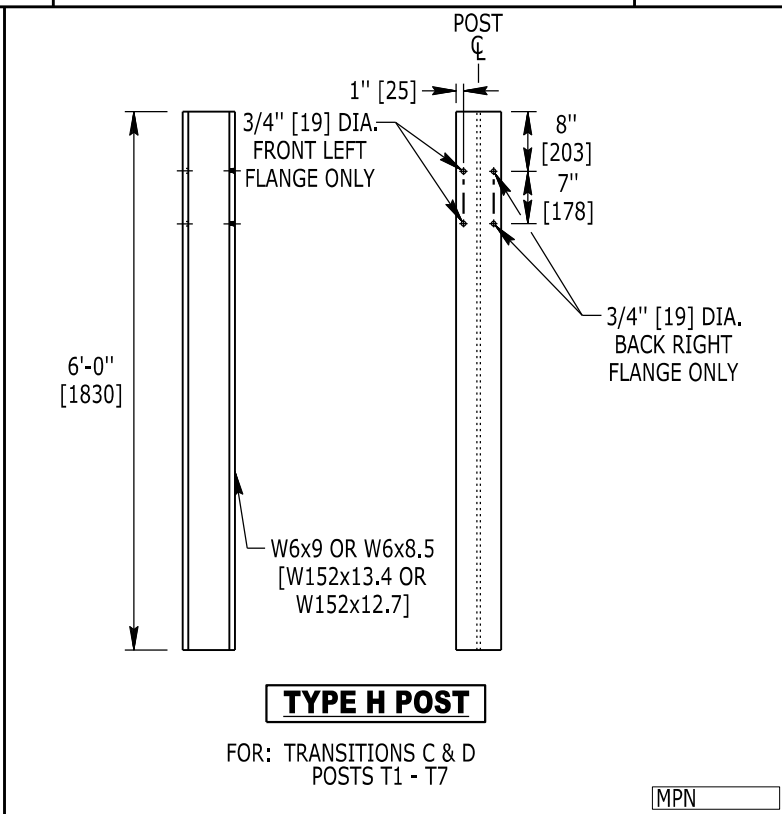
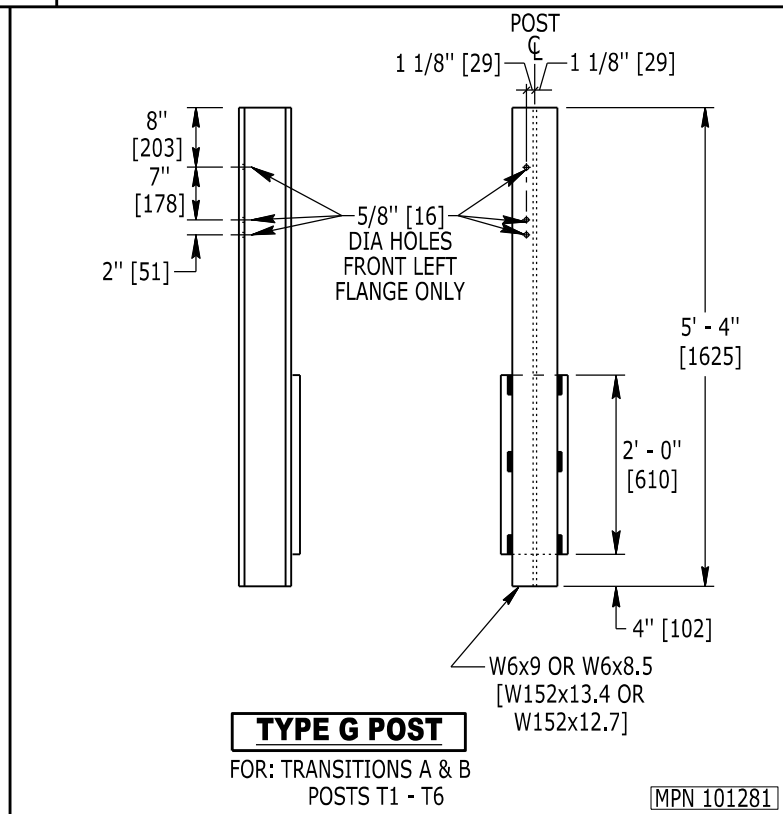
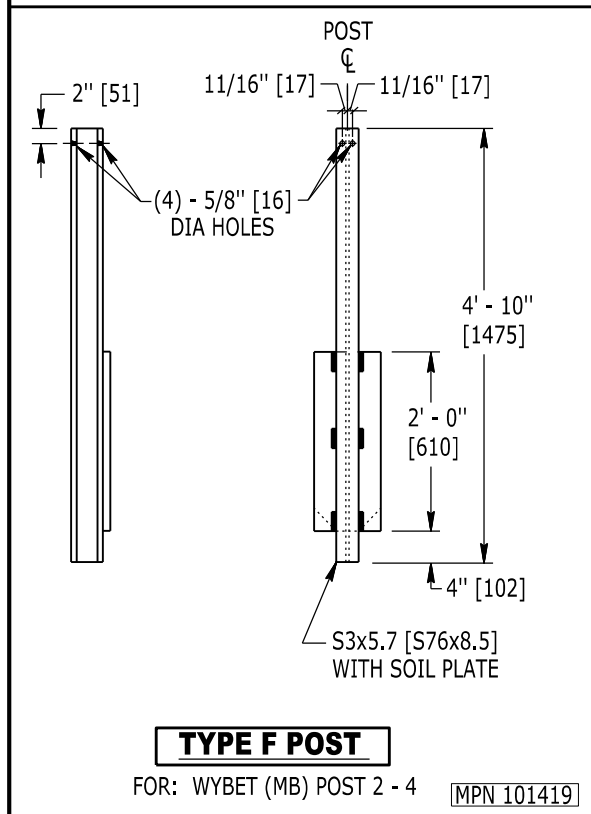
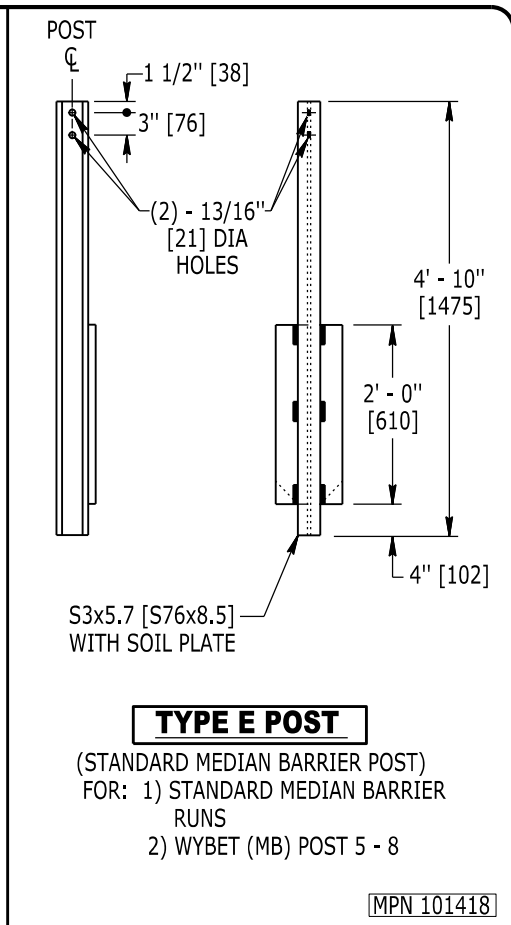
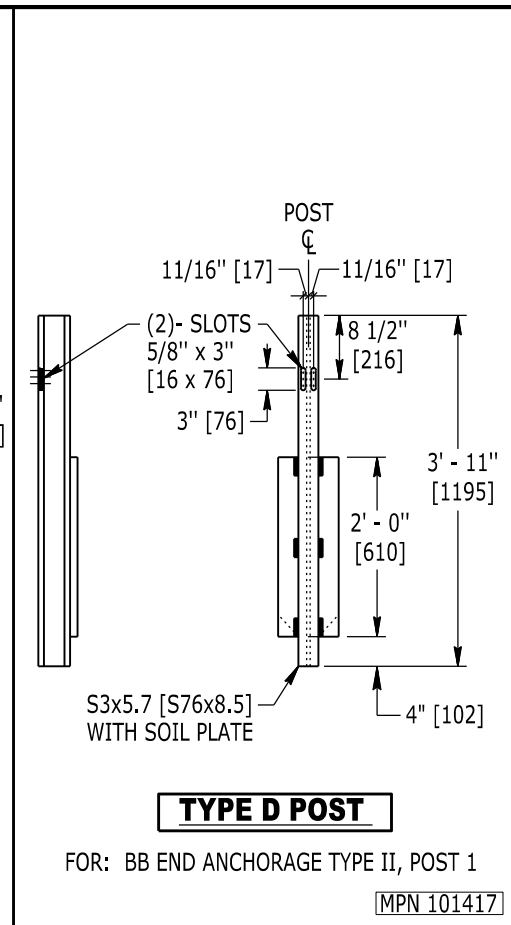
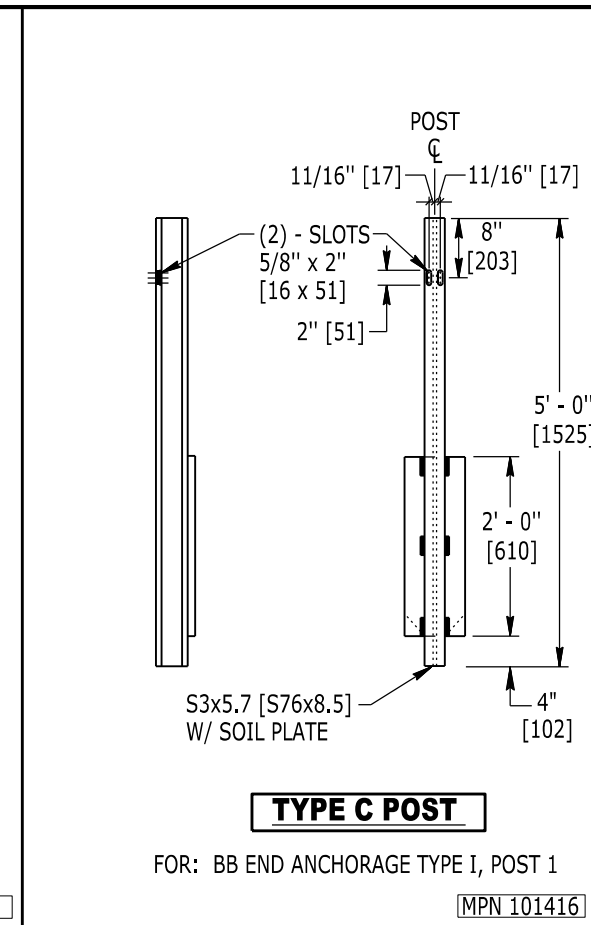
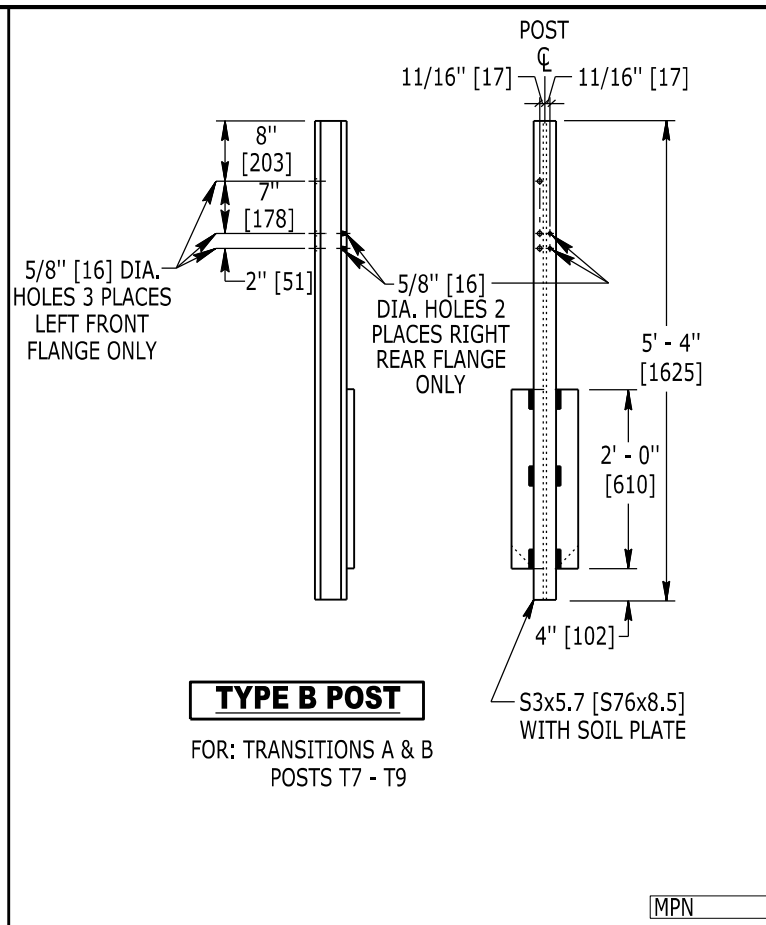
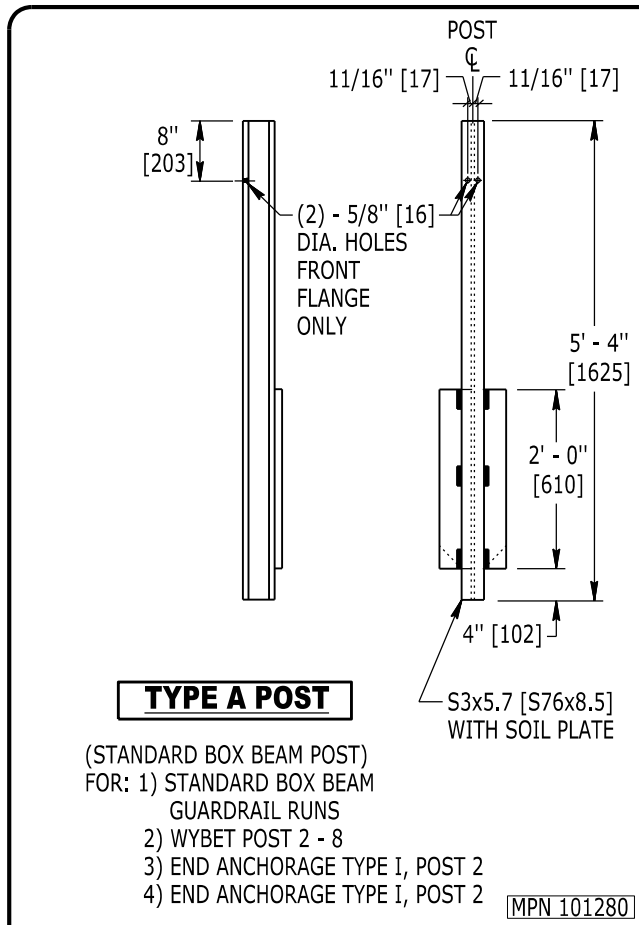


BOX BEAM GUARDRAIL FABRICATION STANDARDS

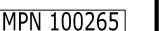
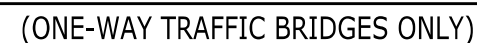
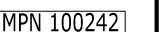
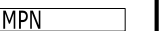
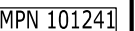
STANDARD PLAN

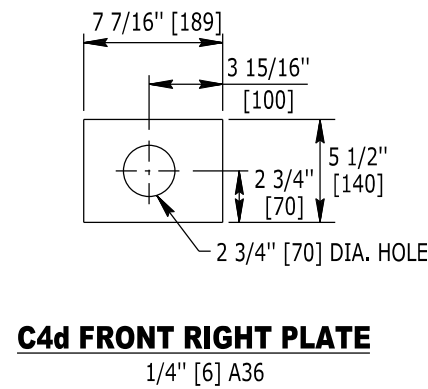
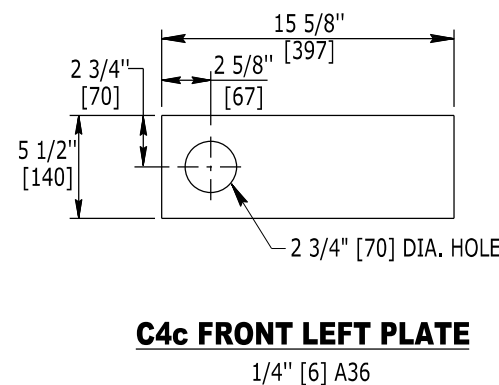
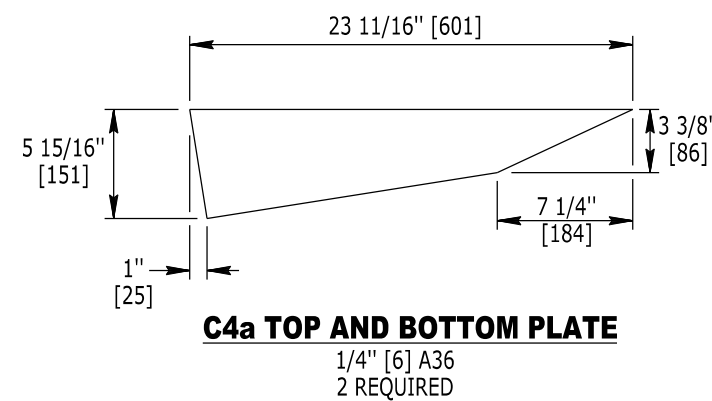
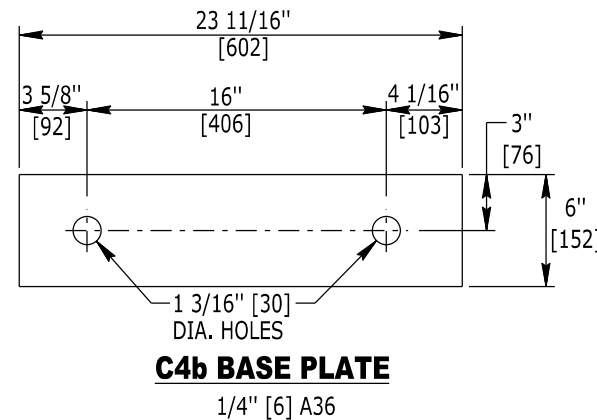
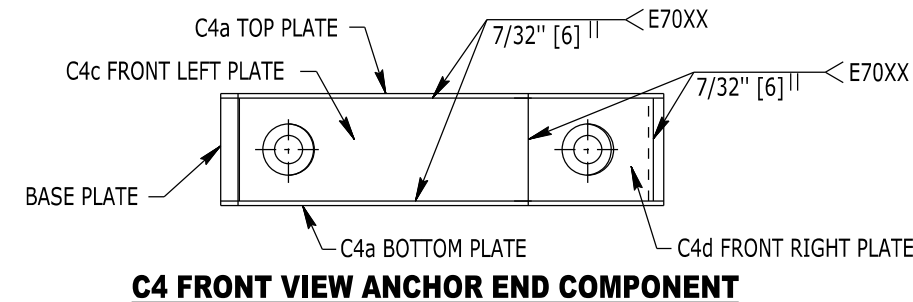
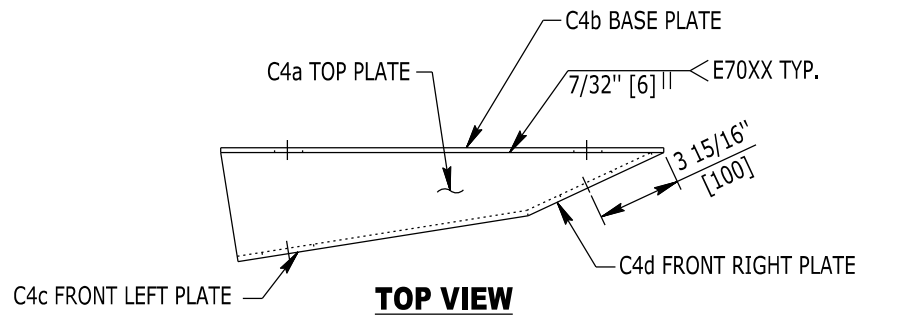
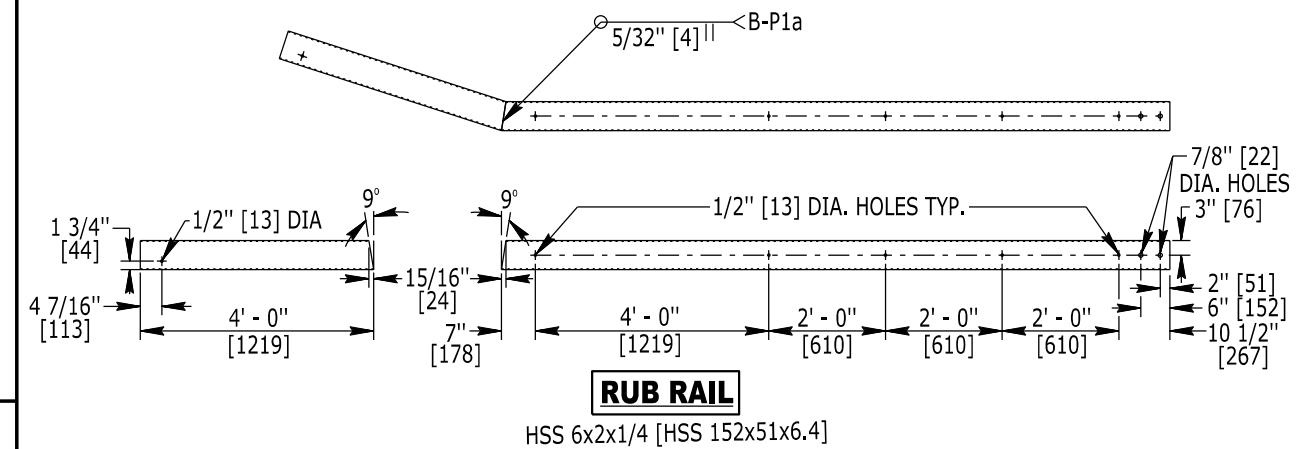
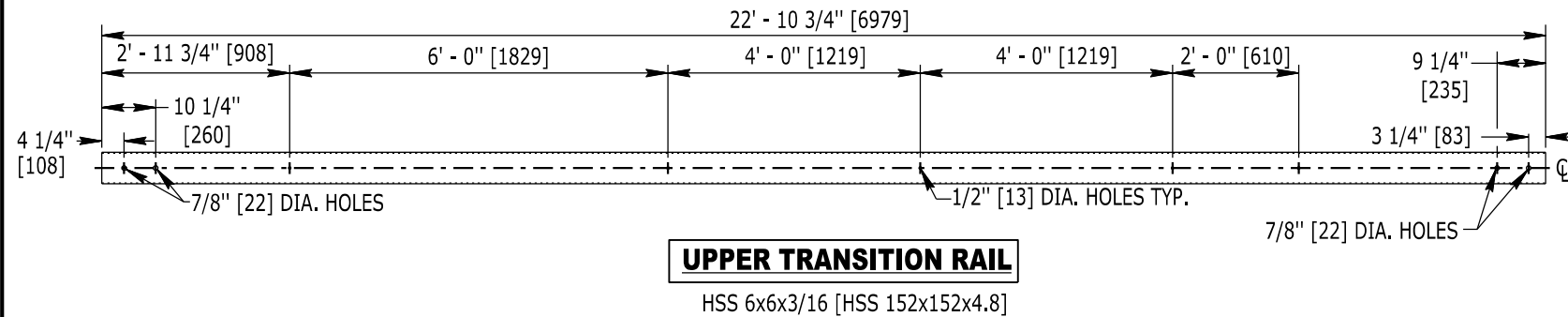
STANDARD PLAN NUMBER
606-7B
SHEET 2 of 14
Issued by: ENGINEERING SERVICES
Date Issued: MARCH 2022



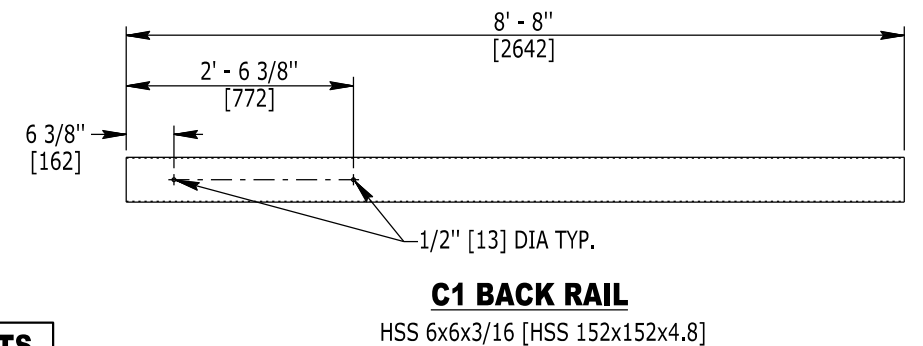
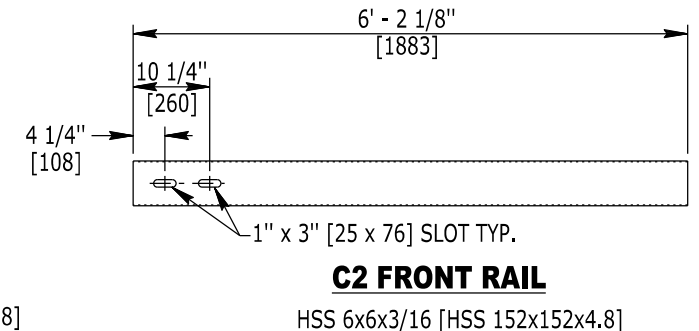
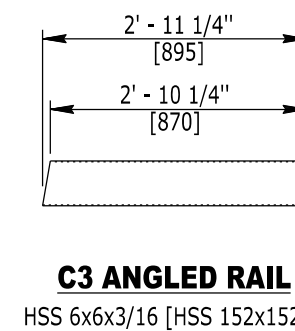
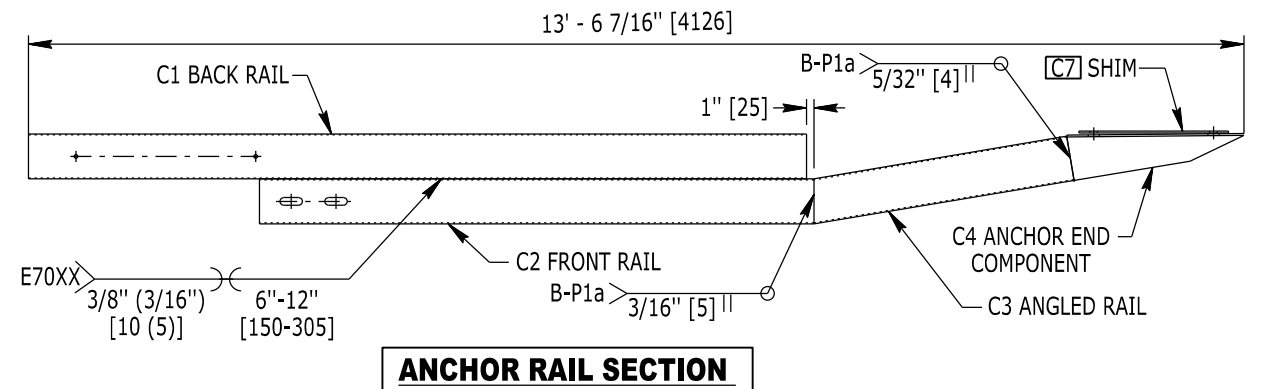


1. Galvanize all steel components after fabrication (including welding) is complete.
2. Typical rail elements are depicted here. Use standard rail elements wherever possible; certain guardrail layouts may require specially fabricated components.
3. Ensure a minimum nominal rail length of 18 ft. [5485] unless otherwise approved by the engineer.





ANCHOR RAIL SUBCOMPONENTS



Designed by: WBW
Drawn by: TWS
Checked by: WBW
Previous Dwg. No. 606-7A

POST & RAIL ELEMENTS -
TRANSITION C & D RAIL ELEMENTS

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



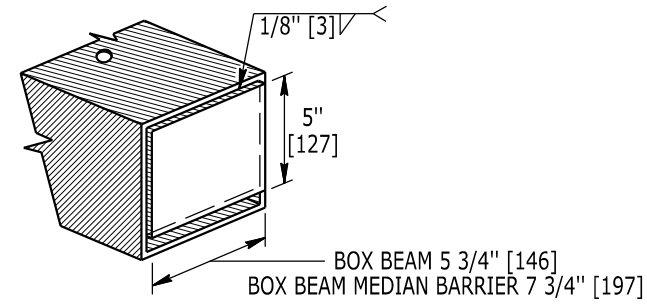
WYOMING DEPARTMENT
OF
TRANSPORTATION



BOX BEAM GUARDRAIL FABRICATION STANDARDS

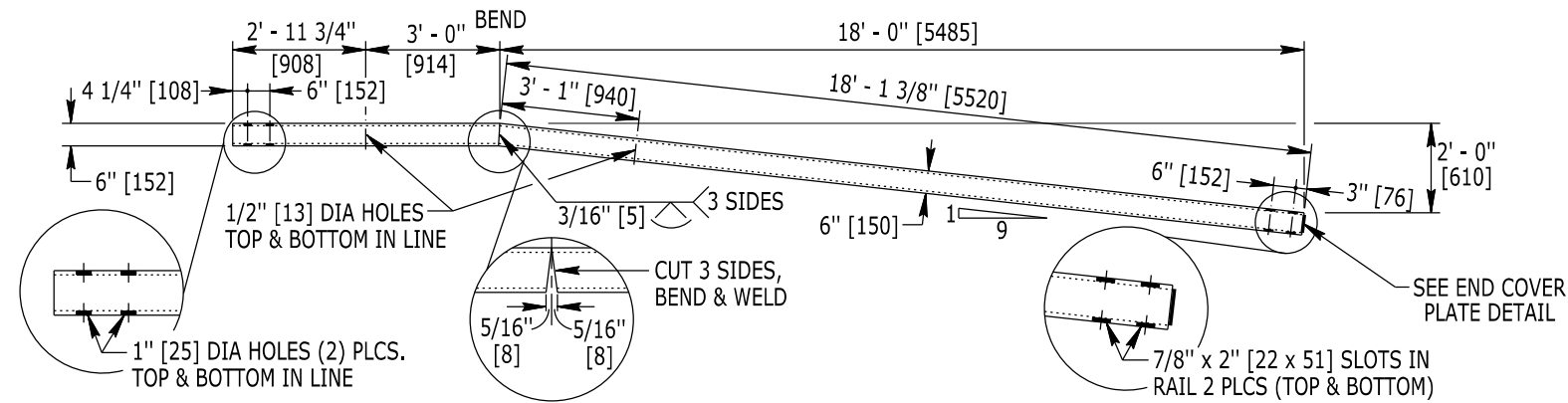
STANDARD PLAN

STANDARD PLAN NUMBER
606-7B
SHEET 6 of 14
Issued by: ENGINEERING SERVICES
Date Issued: MARCH 2022



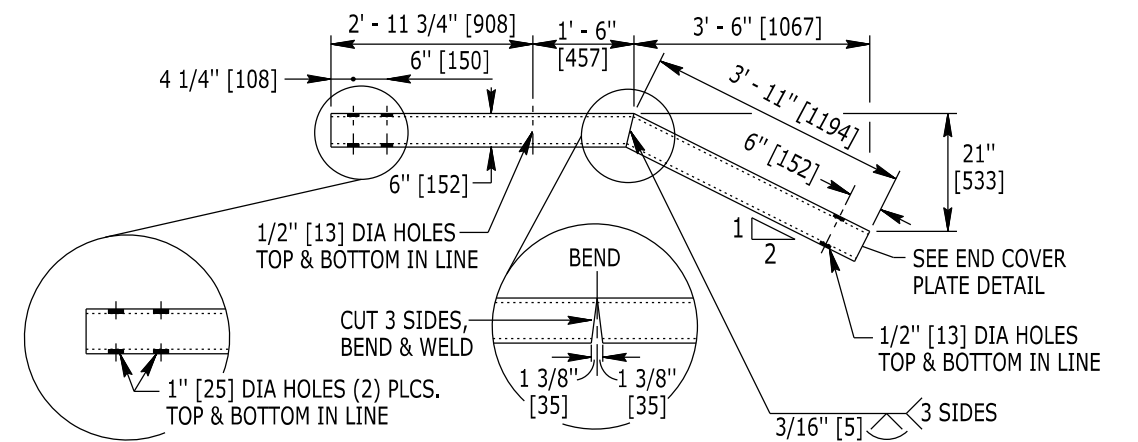
END COVER PLATE DETAIL

1/8" [3] THICK A36 STEEL



END ANCHORAGE TYPE I-

BOX BEAM GUARDRAIL - HSS 6x6x3/16 [HSS 152x152x4.8] MPN 101256
BOX BEAM MEDIAN BARRIER - HSS 8x6x1/4 [HSS 203x152x6.4] MPN 101262



END ANCHORAGE TYPE II-

BOX BEAM GUARDRAIL - HSS 6x6x3/16 [HSS 152x152x4.8] MPN 101257
BOX BEAM MEDIAN BARRIER - HSS 8x6x1/4 [HSS 203x152x6.4] MPN

Designed by: WBW
Drawn by: TWS
Checked by: WBW
Previous Dwg. No. 606-7A

POST & RAIL ELEMENTS -
END ANCHORAGE TYPE I & TYPE II RAIL ELEMENTS

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



BOX BEAM GUARDRAIL FABRICATION STANDARDS

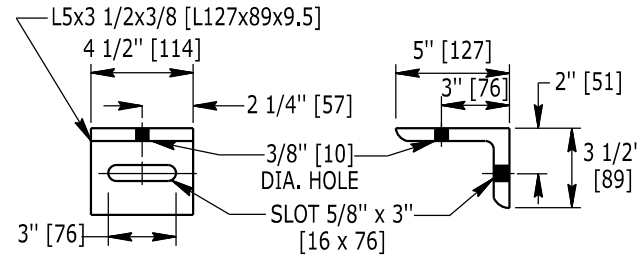
STANDARD PLAN

STANDARD PLAN NUMBER
606-7B
SHEET 7 of 14
Issued by: ENGINEERING SERVICES
Date Issued: MARCH 2022

Disclaimer Note For The Following Terminals

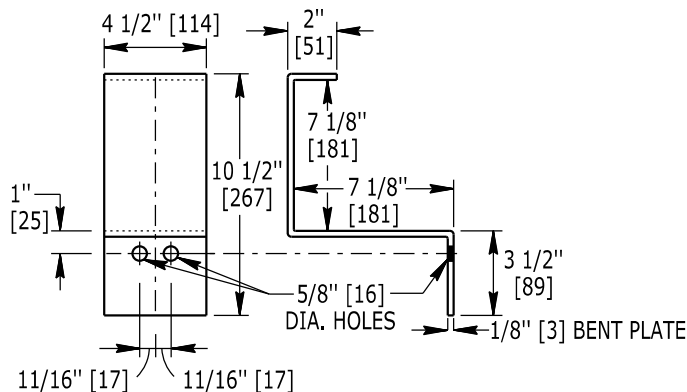
The following details for NCHRP 350 terminals are provided for reference, generally for maintenance purposes **and when specifying median barrier terminals**. Shoulder barrier terminals shall meet MASH and are not detailed herein. See the Box Beam Guardrail Standard Plan and the manufacturer's details.

For Reference Only



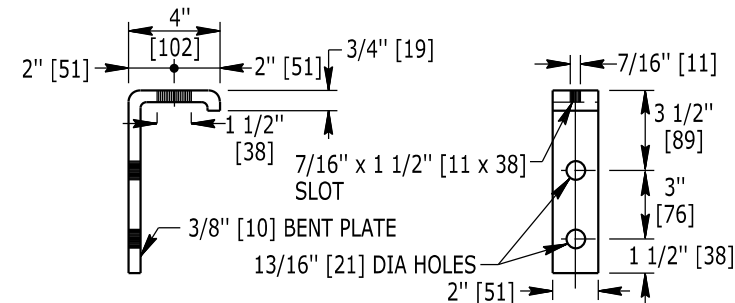
**W1 WYBET SHEAR CONNECTION
SUPPORT ANGLE**

USE (1) - (P1) & (1) - (5/16x7) BOLT PER CONNECTION
WYBET POSTS 6, 7, 8
MPN 101424



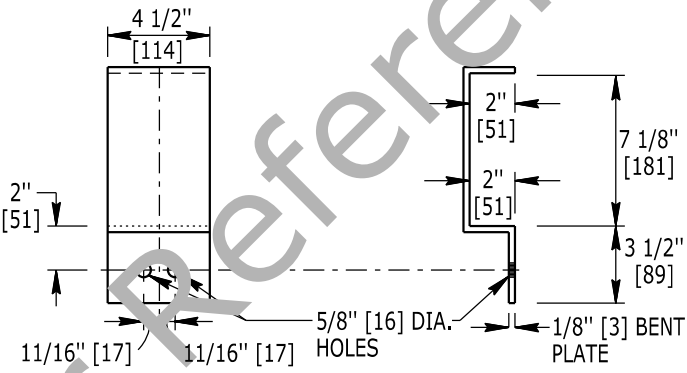
W2 WYBET OUTER RAIL SUPPORT BRACKET

USE (2) - (P1) BOLTS PER BRACKET
WYBET POSTS 2, 3, 4
MPN 101319



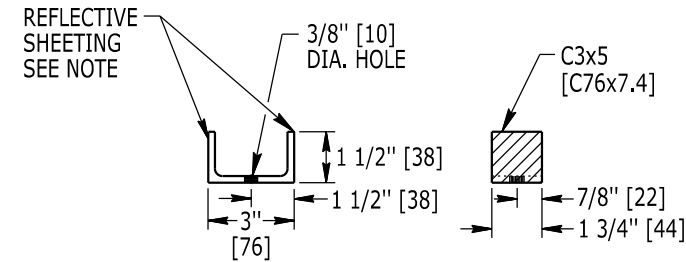
**W3 MEDIAN BARRIER WYBET SHEAR CONNECTION
SUPPORT BRACKET**

USE (2) - (M1) & (1) - (5/16x7) BOLTS
MEDIAN BARRIER WYBET POSTS 5, 6, 7, 8
MPN 101315



W4 WYBET (MB) OUTER RAIL SUPPORT BRACKET

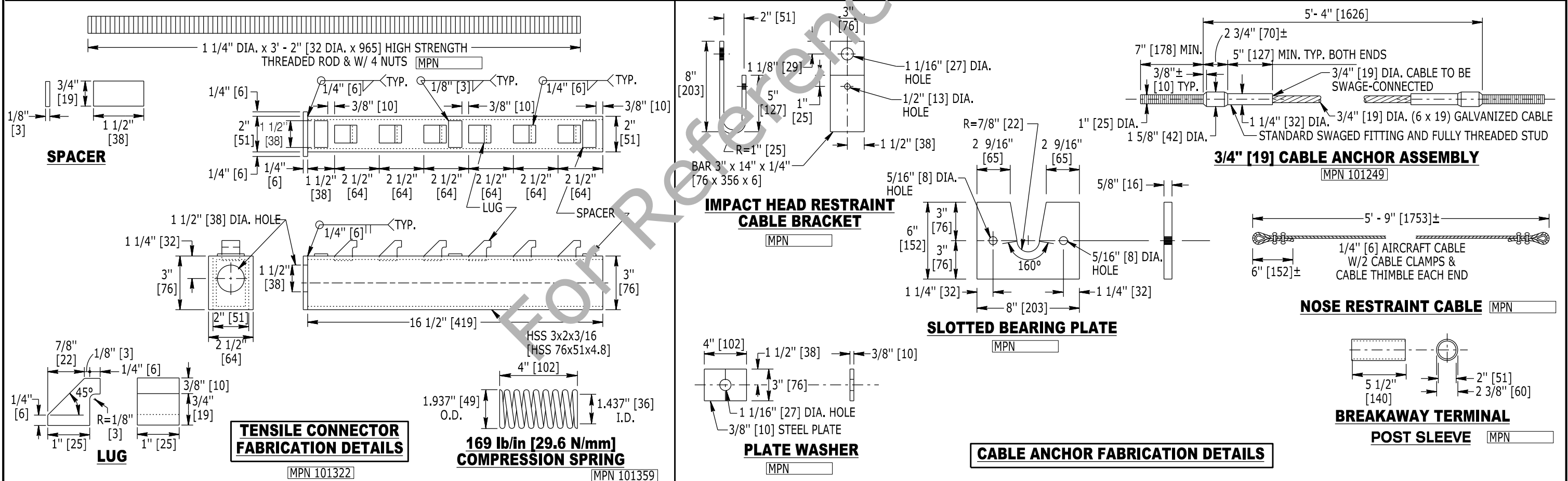
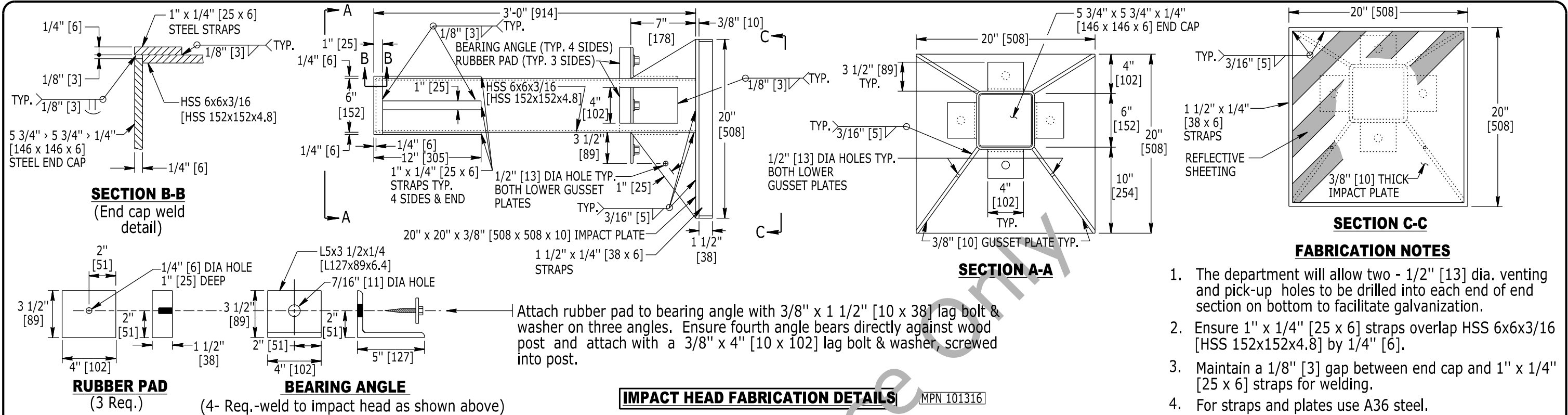
(2) REQ'D PER POST
USE (2) - (P1) BOLTS PER BRACKET
MEDIAN BARRIER WYBET POSTS 2, 3, 4
MPN 101318

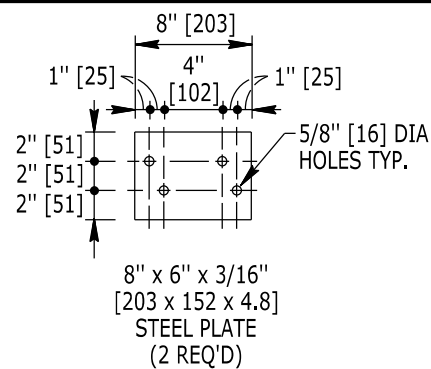
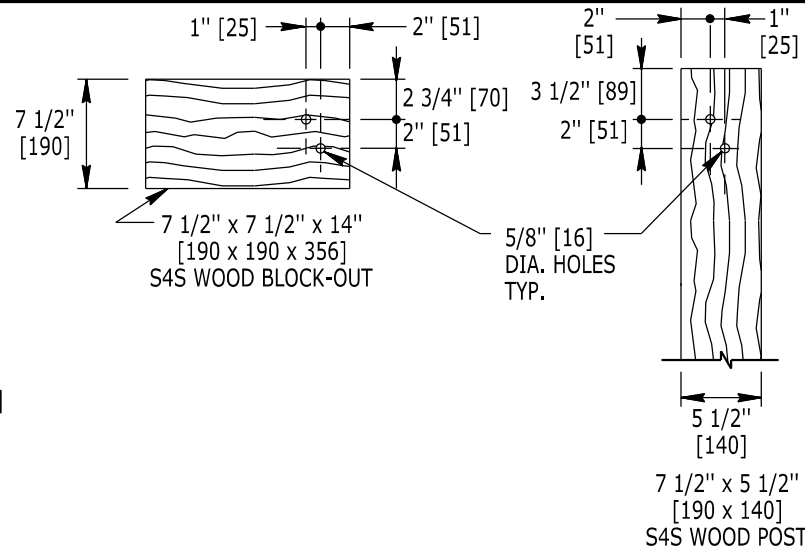
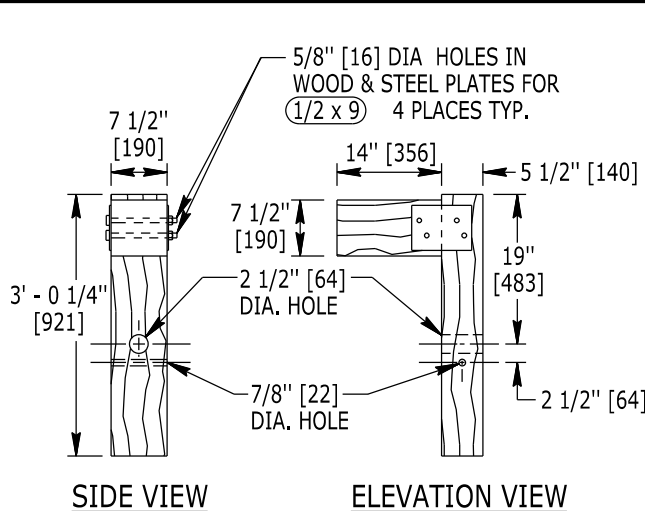


NOTE: Use reflective sheeting that is yellow for all median installations and white for all shoulder installations.

W5 WYBET SHEAR BOLT REFLECTIVE CHANNEL DETAIL

WYBET POSTS 6, 7, 8
SHARES BOLT WITH SUPPORT ANGLE
OR BRACKET
MEDIAN BARRIER WYBET POSTS 6, 7, 8
MPN 101396





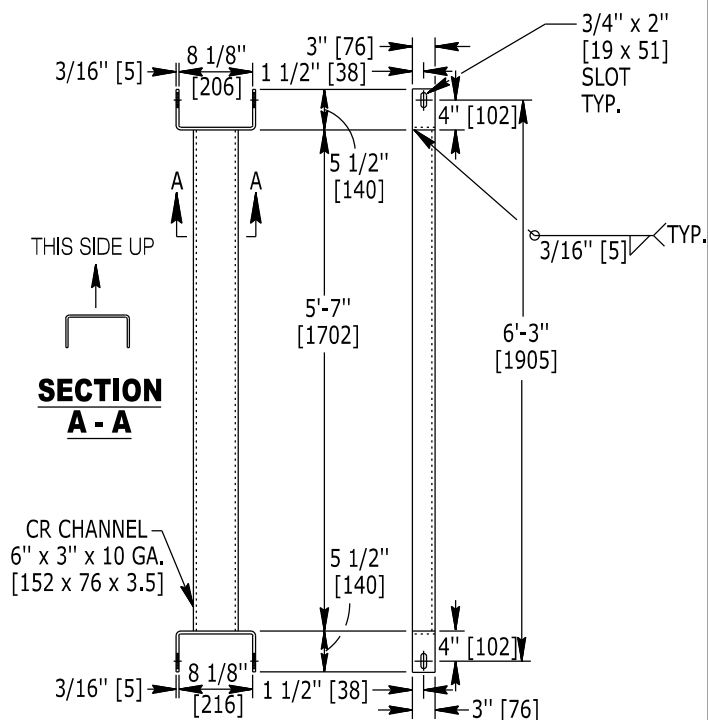
BOLT REQUIREMENTS	
SPECIAL APPLICATION BOLTS	
1/2 x 9	1/2" x 9" [13 x 230] (A307) BOLT + 2 WASHERS (F844) + 1 NUT (A563) 4 REQUIRED TO ATTACH BLOCK-OUT TO POST
5/8 x 7	5/8" x 7 1/2" [16 x 190] (A307) BOLT + 2 WASHERS (F844) + 1 NUT (A563) 2 REQUIRED TO ATTACH SOIL PLATE TO EACH FOUNDATION TUBE
5/8 x 9	5/8" x 9 1/2" [16 x 240] (A307) BOLT + 2 WASHERS (F844) + 1 NUT (A563) 2 REQUIRED (ONE EACH END) TO CONNECT GROUND STRUT TO FOUNDATION TUBES

WYBET BREAKAWAY WOOD POST

FOR WYBET & WYBET (MB) POST #1

MPN 102601

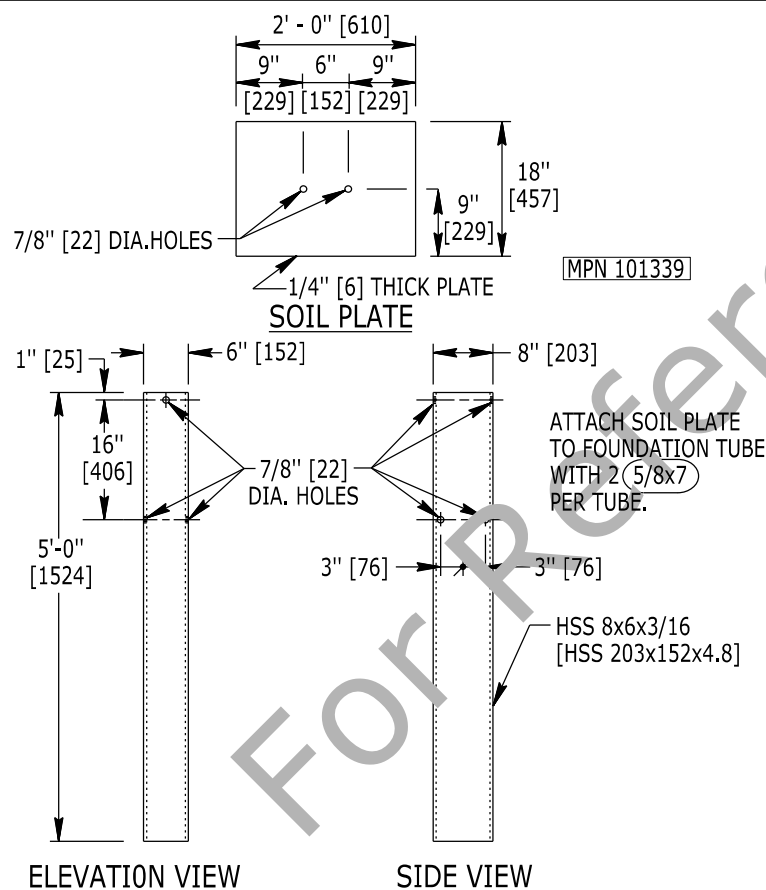
ENLARGED DETAILS



FOUNDATION TUBE GROUND STRUT

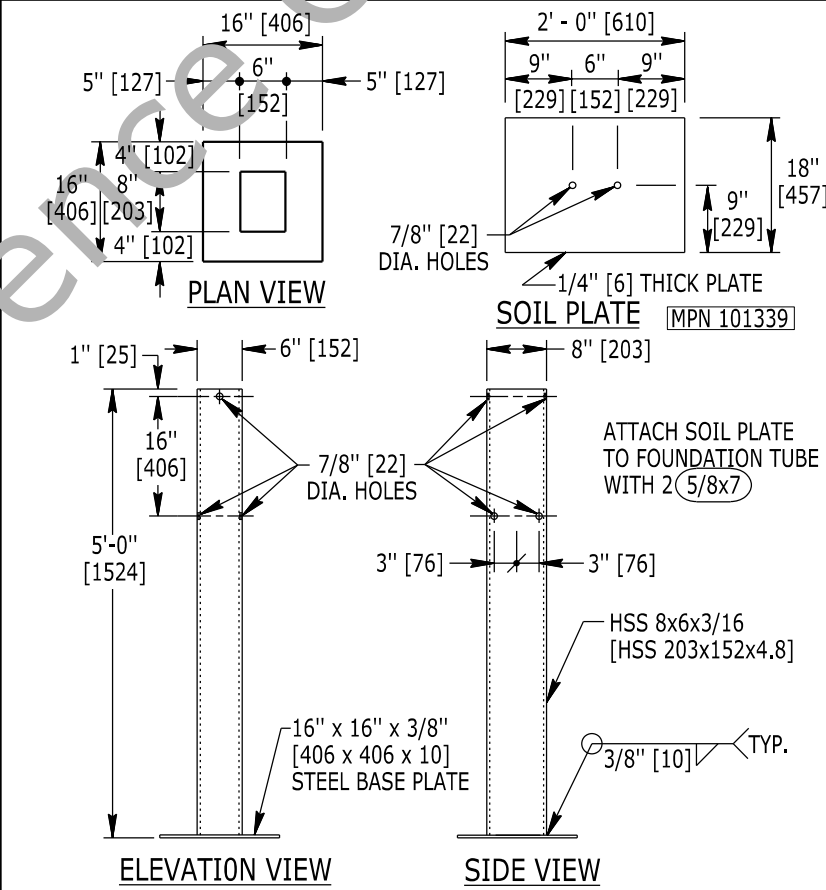
1 REQ'D. FOR WYBET
1 REQ'D. FOR WYBET (MB)

MPN 101320



STANDARD FOUNDATION TUBE (INCL. SOIL PLATE)

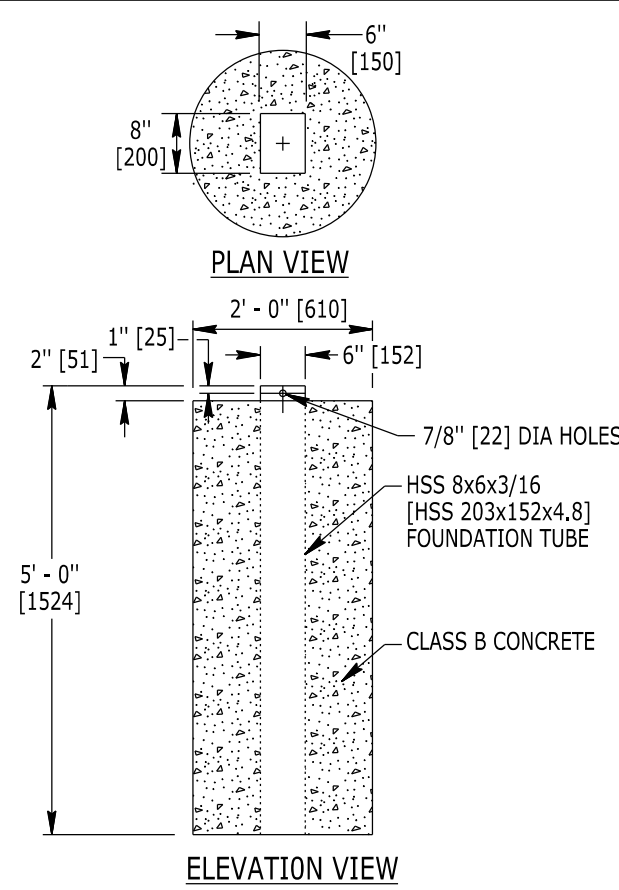
2 REQ'D. FOR WYBET
1 REQ'D. FOR WYBET (MB) PLUS 1 FOUNDATION
TUBE WITH BASE PLATE



FOUNDATION TUBE WITH BASE PLATE (INCL. SOIL PLATE)

1 REQUIRED FOR WYBET (MB)

MPN 101325



ALTERNATE FOUNDATION SYSTEM FOR WYBET & WYBET (MB)

(REPLACES TWO FOUNDATION TUBES
AND GROUND STRUT)

Designed by: WBW
Drawn by: TWS
Checked by: WBW
Previous Dwg. No. 606-7A

350 WYBET SPECIALIZED COMPONENTS -
POST #1 AND FOUNDATION TUBES

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



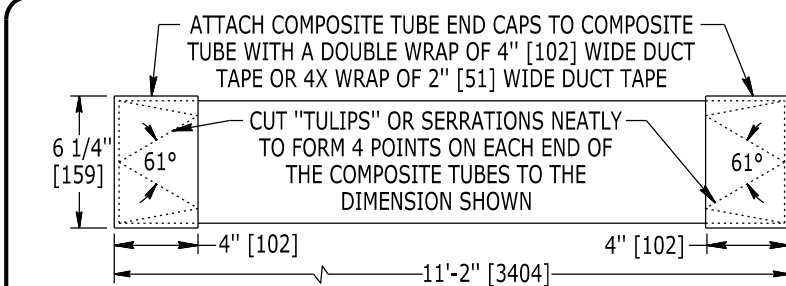
WYOMING DEPARTMENT
OF
TRANSPORTATION



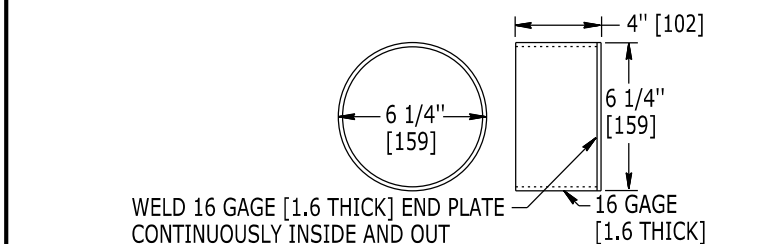
BOX BEAM GUARDRAIL FABRICATION STANDARDS

STANDARD PLAN

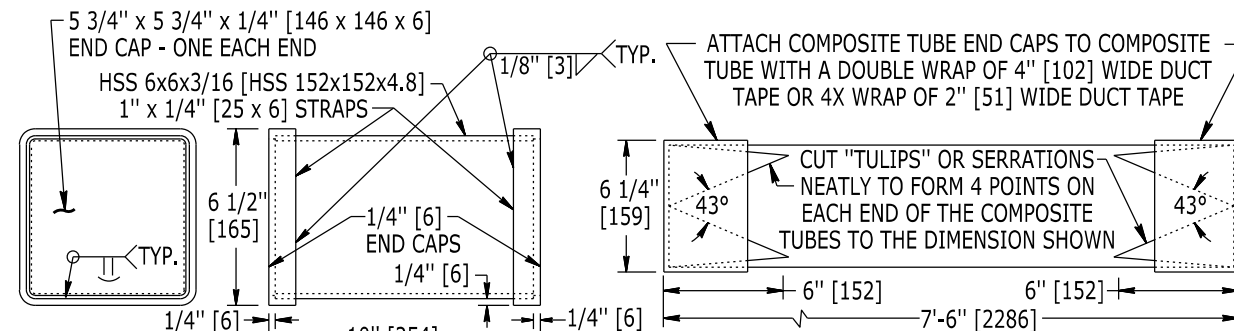
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606-7B
SHEET 11 of 14
Issued by: ENGINEERING SERVICES
Date Issued: MARCH 2022



11'-2" [3404] COMPOSITE TUBE (STAGE 2)
(6" DIA. x 1/4" [152 DIA. x 6.4] WALL THICKNESS)



COMPOSITE TUBE END CAP DETAIL TYP.
MPN 101310



STEEL SPACER DETAILS

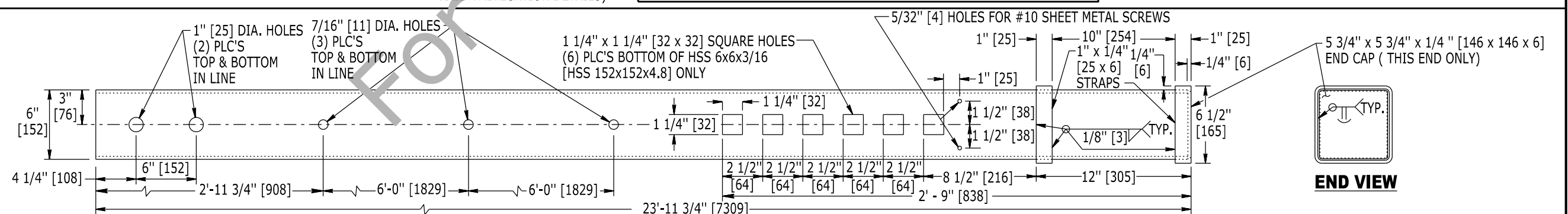
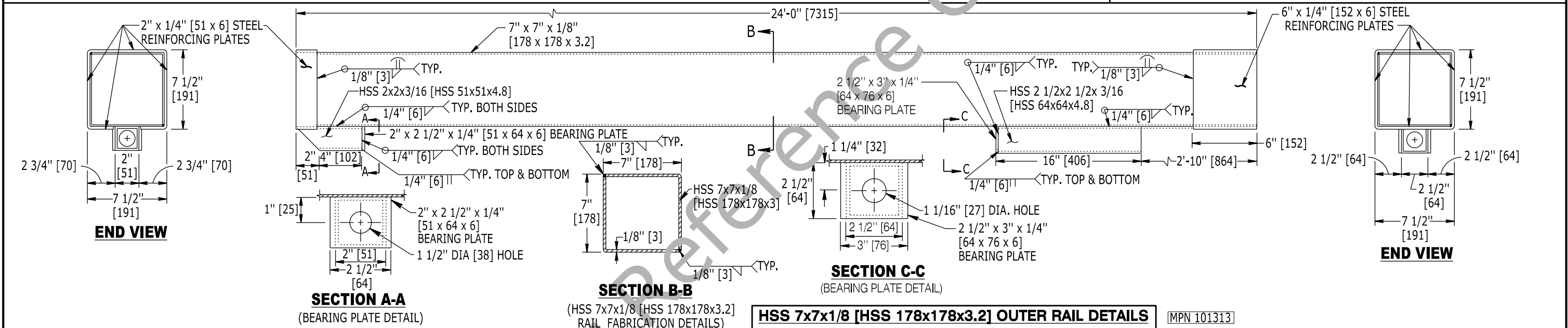
MPN 101311

EXTRUDED FIBERGLASS COMPOSITE TUBES & STEEL SPACER DETAILS
(Internal components for the HSS 7x7 [HSS 178x178] Outer Rail)

Note: Fabricate composite tubes to meet crush characteristics specified.

FABRICATION NOTES

1. Proper performance of the end terminal depends on maintaining a relatively low mass for the 7" x 7" x 1/8" [178 x 178 x 3.2] Outer Rail, therefore the wall thickness cannot be altered.
2. Extend the 1" x 1/4" [25 x 6] steel reinforcing straps 1/4" [6] beyond the end of the HSS 6x6x3/16 [HSS 152x152x4.8] inner rail and the intermediate spacer to facilitate welding of the end caps. Maintain a 1/8" [3] gap all around the end cap to facilitate a good weld all around the end cap.
3. The department will allow two - 1/2" [13] holes to be drilled in the side of the intermediate spacer to act as vent holes during galvanization.
4. For straps & plates, use A36 steel.
5. After fabrication and galvanization and prior to shipment, confirm inner rail slides smoothly inside outer rail without any binding.



Designed by: WBW
Drawn by: TWS
Checked by: WBW
Previous Dwg. No. 606-7A

**WYBET SPECIALIZED COMPONENTS -
RAILS AND INTERNAL ENERGY ABSORBING TUBES**

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



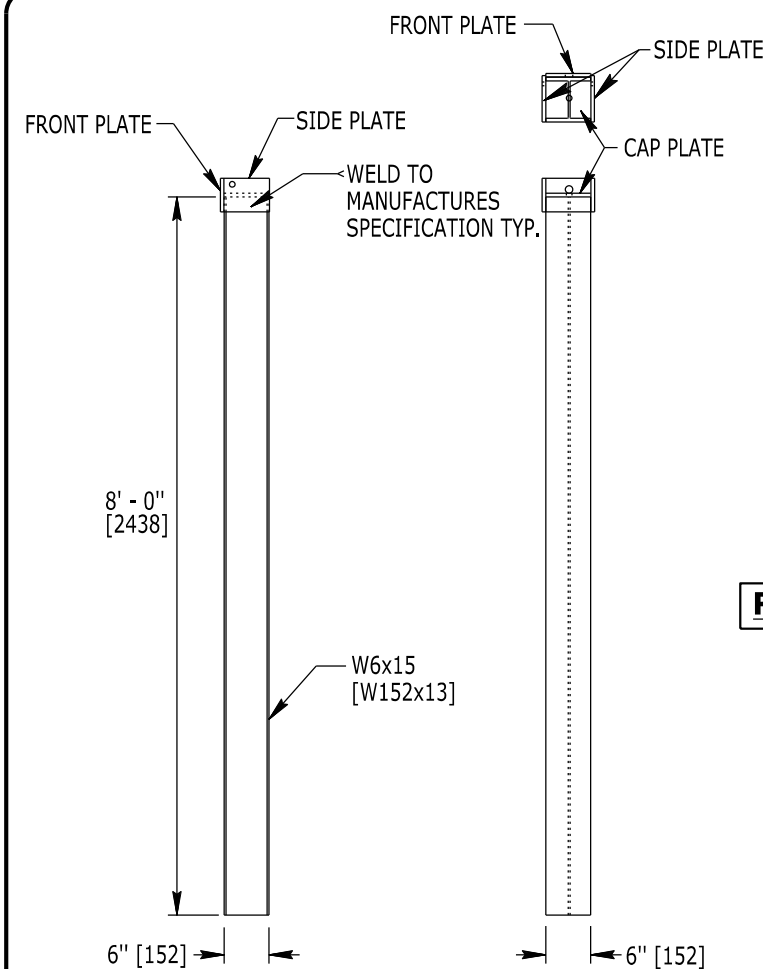
**WYOMING DEPARTMENT
OF
TRANSPORTATION**



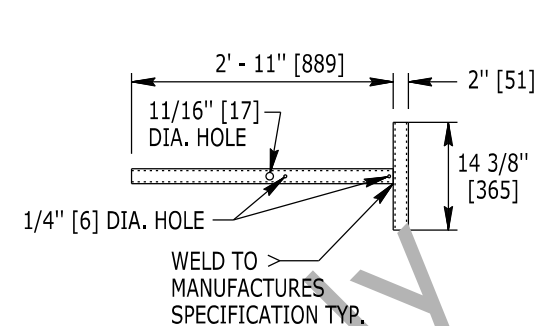
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STANDARD PLAN

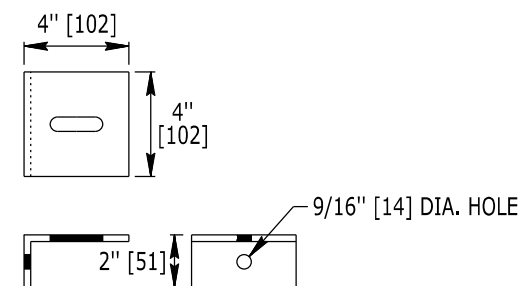
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POST 1 UPPER (ABOVE GROUND) SECTION

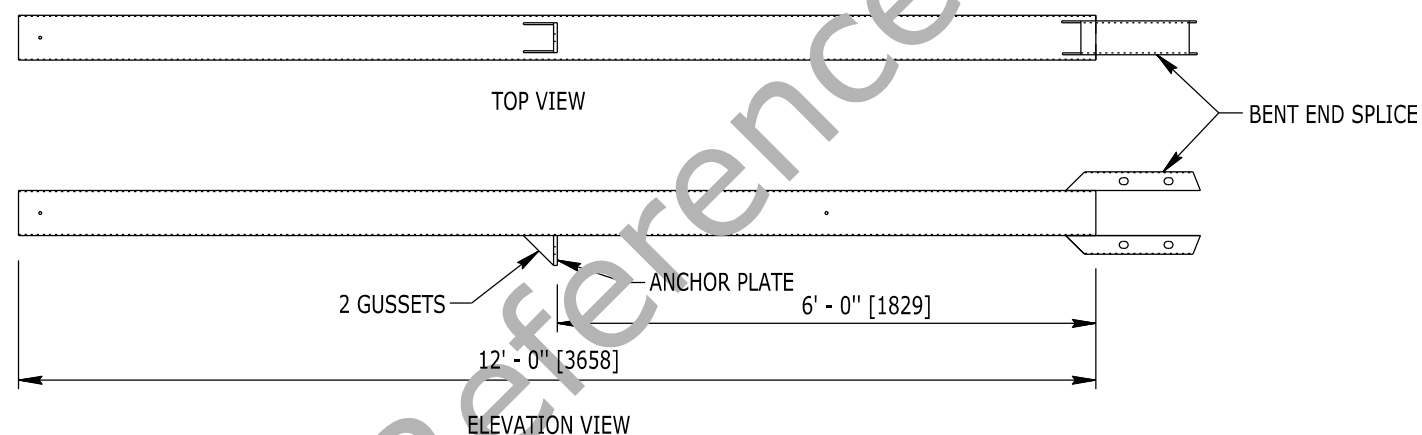


POST BREAKER HSS 2x2x1/4 [HSS 51x51x6.4]

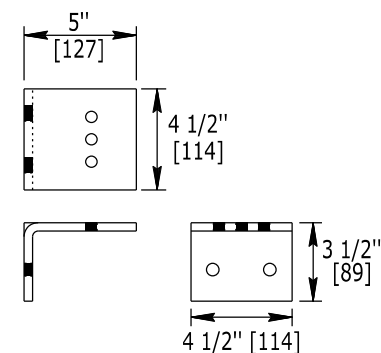


SUPPORT BRACKET 10 GA. [3.5] BENT PLATE

POST 1 LOWER (BELOW GRADE SECTION)

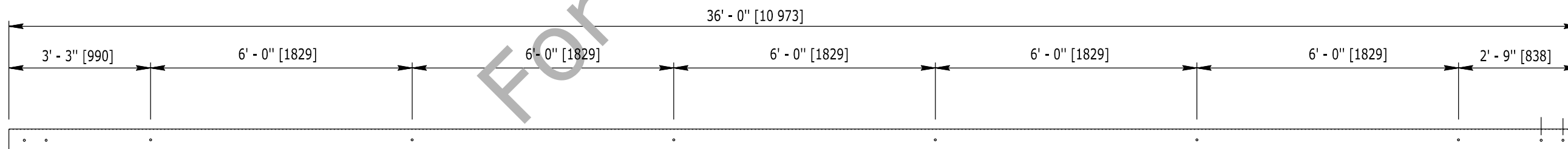


FIRST (END TUBE) RAIL HSS 6x6x1/8 [HSS 152x152x3]



RAIL SUPPORT BRACKET

L5x3 1/2x3/8
[L127x89x9.5]



SECOND BOX BEAM RAIL HSS 6x6x3/16 [HSS 152x152x4.8]

NOTE

Components shown are proprietary and approximate. Don't fabricate from these details. Consult the manufacture's details for more exact requirements. Provide an additional nut on each end of all cable anchors to eliminate the chance of single nuts from "backing off".

Designed by: WBW
Drawn by: TWS
Checked by: WBW
Previous Dwg. No. 606-7A

350 BEAT SPECIALIZED COMPONENTS -
RAILS, POST #1, SUPPORT BRACKET, POST BREAKER

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



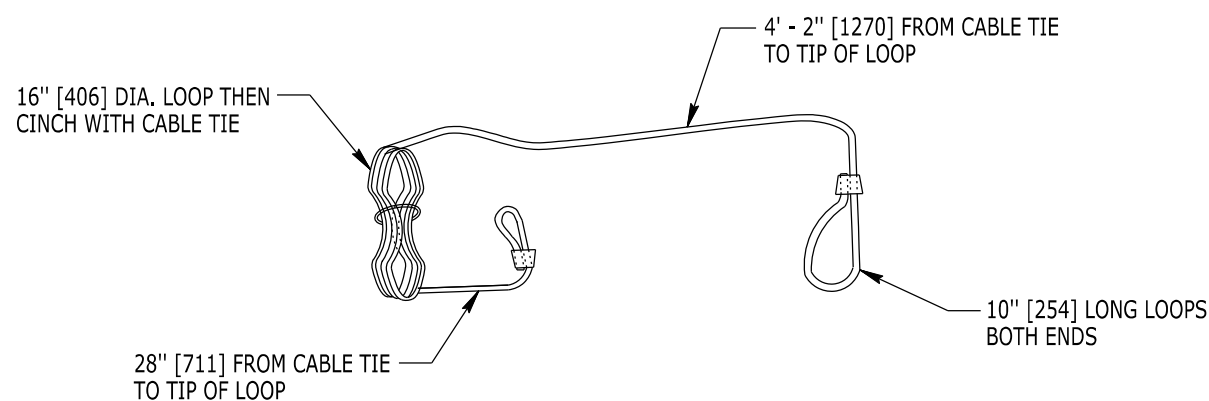
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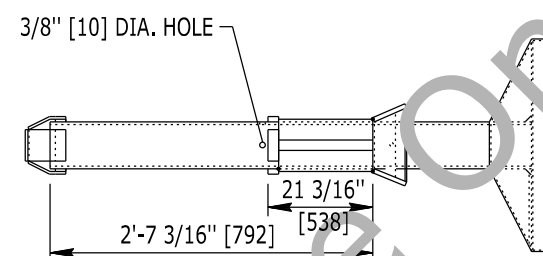
BOX BEAM GUARDRAIL FABRICATION STANDARDS

STANDARD PLAN

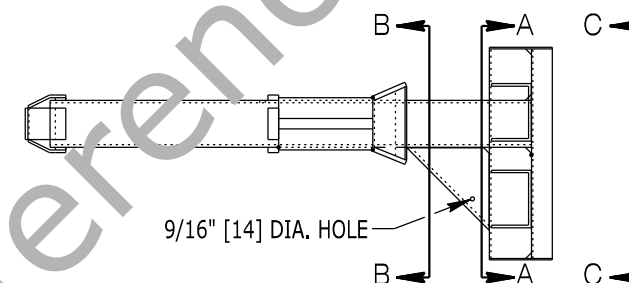
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3/8" x 20'-0" [10 x 6096] GALV. ANCHOR CABLE FOR BEAT MEDIAN

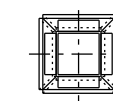


TOP VIEW

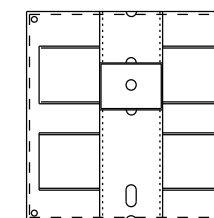


SIDE VIEW

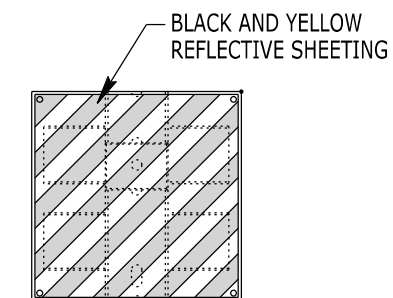
SIDE VIEW



SECTION B-B



SECTION A-A



SECTION C-C

IMPACT HEAD

NOTE

Components shown are proprietary and approximate. Don't fabricate from these details. Consult the manufacture's details for more exact requirements. Provide an additional nut on each end of all cable anchors to eliminate the chance of single nuts from "backing off".

Designed by: WBW
Drawn by: TWS
Checked by: WBW
Previous Dwg. No. 606-7A

350 BEAT SPECIALIZED COMPONENTS (CON'T) - IMPACT HEAD

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



WYOMING DEPARTMENT OF TRANSPORTATION



BOX BEAM GUARDRAIL FABRICATION STANDARDS

STANDARD PLAN

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